2016

# Nebraska Summary: S1057A Massey Ferguson 7714

Nebraska Tractor Test Laboratory
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# SUMMARY OF OECD TEST 2994–NEBRASKA SUMMARY 1057A
# MASSEY FERGUSON 7714 DYNA 4 DIESEL
# ALSO MASSEY FERGUSON 7714S DYNA 4 DIESEL
# 16 SPEED

## POWER TAKE-OFF PERFORMANCE

| Power HP *(kW)* | Crank shaft speed rpm | Diesel Consumption Gal/hr *(l/h)* | lb/hp.hr *(kg/kW.h)* | D.E.F. Consumption Hp.hr/gal *(kW.h/l)* | D.E.F. Consumption Gal/hr *(l/h)* | Mean Atmospheric Conditions |
|---|---|---|---|---|---|---|
| **MAXIMUM POWER AND FUEL CONSUMPTION** | | | | | | |
| **Rated Engine Speed—(PTO speed—1034 rpm)** | | | | | | |
| 129.4 *(96.5)* | 2098 | 7.69 *(29.13)* | 0.414 *(0.252)* | 16.82 *(3.31)* | 0.46 *(1.75)* | |
| **Standard Power Take-off Speed (1000 rpm)** | | | | | | |
| 134.4 *(100.2)* | 2029 | 7.84 *(29.66)* | 0.406 *(0.247)* | 17.15 *(3.38)* | 0.46 *(1.76)* | |
| **Maximum Power (1 hour)** | | | | | | |
| 136.8 *(102.0)* | 1901 | 7.74 *(29.30)* | 0.395 *(0.240)* | 17.67 *(3.48)* | 0.47 *(1.78)* | |
| **VARYING POWER AND FUEL CONSUMPTION** | | | | | | |
| 129.4 *(96.5)* | 2098 | 7.69 *(29.13)* | 0.414 *(0.252)* | 16.82 *(3.31)* | 0.46 *(1.75)* | Air temperature |
| 111.0 *(82.8)* | 2116 | 6.83 *(25.84)* | 0.429 *(0.261)* | 16.24 *(3.20)* | 0.50 *(1.88)* | 73°F *(23°C)* |
| 83.7 *(62.4)* | 2123 | 5.69 *(21.53)* | 0.474 *(0.288)* | 14.71 *(2.90)* | 0.44 *(1.67)* | Relative humidity |
| 55.9 *(41.7)* | 2131 | 4.48 *(16.97)* | 0.558 *(0.340)* | 12.49 *(2.46)* | 0.33 *(1.26)* | 55% |
| 28.1 *(21.0)* | 2141 | 3.37 *(12.77)* | 0.837 *(0.509)* | 8.35 *(1.64)* | 0.25 *(0.93)* | Barometer |
| -- -- | 2148 | 2.37 *(8.97)* | -- -- | -- -- | 0.03 *(0.13)* | 30.2" Hg *(102.2 kPa)* |

Maximum torque - 441 lb.-ft. *(598 Nm)* at 1501 rpm
Maximum torque rise - 36.1%
Torque rise at 1700 engine rpm - 26%
Power increase at 1901 engine rpm - 5.7%

## DRAWBAR PERFORMANCE

### (Unballasted - Front Drive Engaged)
### FUEL CONSUMPTION CHARACTERISTICS

| Power Hp *(kW)* | Drawbar pull lbs *(kN)* | Speed mph *(km/h)* | Crank-shaft speed rpm | Slip % | Fuel Consumption lb/hp.hr *(kg/kW.h)* | Fuel Consumption Hp.hr/gal *(kW.h/l)* | Temp.°F *(°C)* cool-ing med | Air dry bulb | Barom. inch Hg *(kPa)* |
|---|---|---|---|---|---|---|---|---|---|
| **Power at Rated Engine Speed—9th(3A) Gear** | | | | | | | | | |
| 108.8 *(81.1)* | 6970 *(31.0)* | 5.85 *(9.41)* | 2096 | 3.2 | 0.503 *(0.306)* | 13.91 *(2.74)* | 180 *(82)* | 73 *(23)* | 30.1 *(101.8)* |
| **75% of Pull at Rated Engine Speed—9th(3A) Gear** | | | | | | | | | |
| 83.4 *(62.2)* | 5260 *(23.4)* | 5.95 *(9.58)* | 2124 | 3.0 | 0.553 *(0.337)* | 12.64 *(2.49)* | 180 *(82)* | 73 *(23)* | 30.1 *(101.8)* |
| **50% of Pull at Rated Engine Speed—9th(3A) Gear** | | | | | | | | | |
| 56.2 *(41.9)* | 3480 *(15.5)* | 6.06 *(9.76)* | 2127 | 1.3 | 0.666 *(0.405)* | 10.51 *(2.07)* | 180 *(82)* | 73 *(23)* | 30.1 *(101.8)* |
| **75% of Pull at Reduced Engine Speed—10th(3B) Gear** | | | | | | | | | |
| 83.1 *(62.0)* | 5230 *(23.3)* | 5.96 *(9.59)* | 1722 | 2.5 | 0.500 *(0.304)* | 13.97 *(2.75)* | 180 *(82)* | 72 *(22)* | 30.1 *(101.8)* |
| **50% of Pull at Reduced Engine Speed—10th(3B) Gear** | | | | | | | | | |
| 55.8 *(41.6)* | 3460 *(15.4)* | 6.05 *(9.74)* | 1729 | 1.4 | 0.567 *(0.345)* | 12.33 *(2.43)* | 178 *(81)* | 72 *(22)* | 30.1 *(101.8)* |

**Location of tests:** IRSTEA, Centre d'Antony, 1 rue Pierre-Gilles de Gennes CS 10030 Antony, 92163, Cedex, France

**Dates of tests:** June to July, 2016

**Manufacturer:** AGCO S.A.S 41, Avenue Blaise Pascal, 60000 Beauvais, France

**CONSUMABLE FLUIDS: Fuel** No. 2 Diesel **Specific gravity converted to 60°/60°F** *(15°/15°C)* 0.839 **Fuel weight** 6.98 lbs/gal *(0.837 kg/l)* **Diesel Exhaust Fluid (DEF)** 32% aqueous urea solution **DEF weight** 9.10 lbs/gal *(1.091 kg/l)* **Oil SAE** 15W40 **API service classification** CJ-4 **Transmission and hydraulic lubricant** BP Terrac Tractan 9 15W/40 **Front axle lubricant** BP Terrac Tractan 9 15W/40

**ENGINE: Make** AGCO Power Diesel **Type** six cylinder vertical with turbocharger, air to air intercooler and SCR (selective catalyst reduction) exhaust treatment **Serial No.** Z100 **Crankshaft** lengthwise **Rated engine speed** 2100 **Bore and stroke** 4.252" x 4.724" *(108.0 mm x 120.0 mm)* **Compression ratio** 17.4 to 1 **Displacement** 402 cu in *(6596 ml)* **Starting system** 12 volt **Lubrication** pressure **Air cleaner** two paper elements **Oil filter** one full flow cartridge **Oil cooler** engine coolant heat exchanger for crankcase oil, radiator for hydraulic and transmission oil **Fuel filter** three paper cartridges **Muffler** vertical **Cooling medium temperature control** thermostat and variable speed fan

**CHASSIS: Type** front wheel assist **Serial No.** E 006901 **Tread width** rear 52.8" *(1340 mm)* to 87.8" *(2230 mm)* front 52.8" *(1340 mm)* to 87.8" *(2230 mm)* **Wheelbase** 113.2" *(2875 mm)* **Hydraulic control system** direct engine drive **Transmission** selective gear fixed ratio with partial (4) range operator controlled powershift **Nominal travel speeds mph** ***(km/h)*** first 1.24 *(2.00)* second 1.53 *(2.46)* third 1.86 *(3.00)* fourth 2.29 *(3.69)* fifth 2.95 *(4.74)* sixth 3.62 *(5.83)* seventh 4.42 *(7.11)* eighth 5.43 *(8.74)* ninth 5.98 *(9.62)* tenth 7.36 *(11.84)* eleventh 8.97 *(14.44)* twelfth 11.04 *(17.76)* thirteenth 15.09 *(24.29)* fourteenth 18.56 *(29.87)* fifteenth 22.64 *(36.44)* sixteenth 27.84 *(44.81)* reverse 1.24 *(2.00)*, 1.53 *(2.46)*, 1.86 *(3.00)*, 2.29 *(3.69)*, 2.95 *(4.74)*, 3.62 *(5.83)*, 4.42 *(7.11)*, 5.43 *(8.74)*, 5.98 *(9.62)*, 7.36 *(11.84)*, 8.97 *(14.44)*, 11.04 *(17.76)*, 15.09 *(24.29)*, 18.56 *(29.87)*, 22.64 *(36.40)*, 27.84 *(44.81)* **Clutch** multiple wet disc operated by foot pedal **Brakes** multiple wet disc hydraulically operated by two foot pedals that can be locked together **Steering** hydrostatic **Power take-off** 540 rpm at 1982 engine rpm or 1000 rpm at 2030 engine rpm **Unladen tractor mass** 14650 lb *(6645 kg)*

## DRAWBAR PERFORMANCE AT 1900 ENGINE RPM

### (Unballasted - Front Drive Engaged)
### MAXIMUM POWER IN SELECTED GEARS

| Power Hp *(kW)* | Drawbar pull lbs *(kN)* | Speed mph *(km/h)* | Crank-shaft speed rpm | Slip % | Fuel Consumption lb/hp.hr *(kg/kW.h)* | Hp.hr/gal *(kW.h/l)* | Temp.°F/*(°C)* cool-ing med | Air dry bulb | Barom. inch Hg *(kPa)* |
|---|---|---|---|---|---|---|---|---|---|
| | | | | | 4th(1D) Gear | | | | |
| 68.8 *(51.3)* | 12835 *(57.1)* | 2.01 *(3.24)* | 2118 | 14.4 | 0.626 *(0.381)* | 11.17 *(2.20)* | 178 *(81)* | 72 *(22)* | 30.1 *(102.0)* |
| | | | | | 5th(2A) Gear | | | | |
| 85.6 *(63.8)* | 12140 *(54.0)* | 2.64 *(4.25)* | 2090 | 11.0 | 0.556 *(0.338)* | 12.59 *(2.48)* | 180 *(82)* | 73 *(23)* | 30.1 *(102.0)* |
| | | | | | 6th(2B) Gear | | | | |
| 99.4 *(74.1)* | 11960 *(53.2)* | 3.12 *(5.01)* | 1961 | 9.1 | 0.510 *(0.310)* | 13.71 *(2.70)* | 180 *(82)* | 73 *(23)* | 30.1 *(101.9)* |
| | | | | | 7th(2C) Gear | | | | |
| 104.7 *(78.1)* | 10365 *(46.1)* | 3.79 *(6.10)* | 1898 | 6.3 | 0.487 *(0.297)* | 14.35 *(2.83)* | 180 *(82)* | 72 *(22)* | 30.1 *(101.9)* |
| | | | | | 8th(2D) Gear | | | | |
| 100.8 *(75.2)* | 7960 *(35.4)* | 4.75 *(7.65)* | 1887 | 3.9 | 0.507 *(0.309)* | 13.79 *(2.72)* | 180 *(82)* | 73 *(23)* | 30.1 *(101.8)* |
| | | | | | *9th(3A) Gear | | | | |
| 116.4 *(86.8)* | 8250 *(36.7)* | 5.29 *(8.52)* | 1913 | 4.2 | 0.472 *(0.287)* | 14.82 *(2.92)* | 181 *(83)* | 73 *(23)* | 30.1 *(101.8)* |
| | | | | | *10th(3B) Gear | | | | |
| 113.2 *(84.4)* | 6495 *(28.9)* | 6.54 *(10.53)* | 1894 | 2.7 | 0.478 *(0.291)* | 14.62 *(2.88)* | 181 *(83)* | 72 *(22)* | 30.1 *(101.8)* |
| | | | | | *11th(3C) Gear | | | | |
| 111.8 *(83.4)* | 5140 *(22.9)* | 8.16 *(13.13)* | 1930 | 2.1 | 0.487 *(0.296)* | 14.37 *(2.83)* | 181 *(83)* | 72 *(22)* | 30.1 *(101.8)* |
| | | | | | *12th(3D) Gear | | | | |
| 110.5 *(82.4)* | 4155 *(18.5)* | 9.97 *(16.05)* | 1904 | 1.8 | 0.494 *(0.301)* | 14.15 *(2.79)* | 181 *(83)* | 72 *(22)* | 30.1 *(101.8)* |

* Powerboost mode

**REPAIRS AND ADJUSTMENTS:** No repairs or adjustments.

**NOTE:** This tractor has a power management system that provides an engine power increase when the PTO is engaged and for travel speeds from gear 3A and higher.

**REMARKS:** All test results were determined from observed data obtained in accordance with official OECD test procedures. This tractor fell 13.1% short of meeting the manufacturer's remote hydraulic flow claim of 29 GPM *(110 l/min)* (multiple outlets), 4.2% short of the 26.4 GPM *(100 l/min)* (single outlet), and 3.0% short of the 3 point lift claim of 8900 lbs *(4035 kg)*. The performance figures on this summary were taken from a test conducted under the OECD Code 2 test procedure.

**REPORT REISSUED:** Supplemental sales permit for Massey Ferguson 7714S Dyna 4 Diesel, November, 2018.

We, the undersigned, certify that this is a true summary of data from OECD Report No. **2994,** Nebraska Summary 1057A, November 29, 2018.

Roger M. Hoy
Director

M.F. Kocher
J.D. Luck
P.J. Jasa
Board of Tractor Test Engineers

| TRACTOR SOUND LEVEL WITH CAB | Front wheel drive Engaged dB(A) | Front wheel drive Disengaged dB(A) |
|---|---|---|
| At no load in 7th (2C) gear | 69.0 | 69.0 |
| Bystander | | -- |

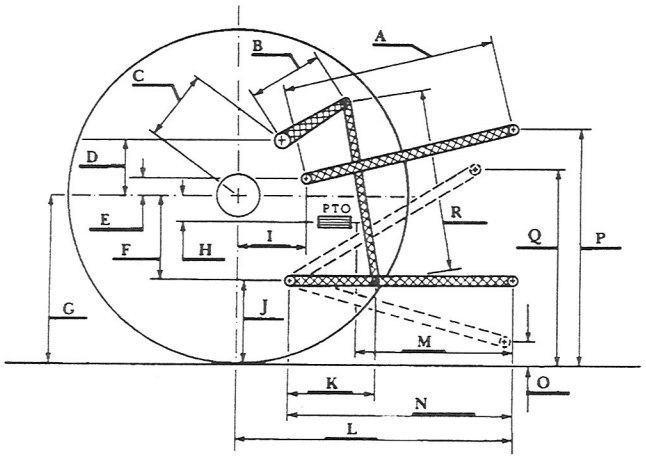
Horizontal distance of drawbar hitch point behind rear wheel axis - 28.5 in *(725 mm)*, 34.4 in *(875 mm)*

| TIRES, BALLAST AND WEIGHT | Tested without ballast |
|---|---|
| **Rear Tires** - No., size, ply & psi*(kPa)* | Two 580/70R38;**;13*(90)* |
| **Front Tires** - No., size, ply & psi*(kPa)* | Two 480/70R28;**;15*(100)* |
| **Height of Drawbar** | 19.7 in *(500 mm)* |
| **Static Weight with operator** - Rear | 8200 lb *(3720 kg)* |
| - Front | 6615 lb *(3000 kg)* |
| - Total | 14815 lb *(6720 kg)* |

## HYDRAULIC PERFORMANCE

CATEGORY: III
Quick Attach: None
OECD Static test

| | |
|---|---|
| Maximum force exerted through whole range: | 8630 lbs *(38.4 kN)* |
| i) Sustained pressure of the open relief valve: | 2875 psi *(198 bar)* |
| | two outlet sets combined |
| ii) Pump delivery rate at minimum pressure: | 25.2 GPM *(95.5 l/min)* |
| iii) Pump delivery rate at maximum hydraulic power: | 23.8 GPM *(90.0 l/min)* |
| Delivery pressure: | 2380 psi *(164 bar)* |
| Power: | 33.0 HP *(24.6 kW)* |
| | single outlet set |
| ii) Pump delivery rate at minimum pressure: | 25.3 GPM *(95.6 l/min)* |
| iii) Pump delivery rate at maximum hydraulic power: | 23.9 GPM *(90.5 l/min)* |
| Delivery pressure: | 2160 psi *(149 bar)* |
| Power: | 30.1 HP *(22.5 kW)* |




**HITCH DIMENSIONS AS TESTED—NO LOAD**

| | inch | *mm* |
|---|---|---|
| A | 28.7 | *730* |
| B | 11.6 | *295* |
| C | 13.9 | *354* |
| D | 13.0 | *330* |
| E | 9.9 | *251* |
| F | 11.0 | *280* |
| G | 34.4 | *875* |
| H | 1.7 | *43* |
| I | 15.5 | *394* |
| J | 23.4 | *595* |
| K | 21.4 | *543* |
| L | 43.3 | *1101* |
| M | 24.6 | *625* |
| N | 37.0 | *940* |
| O | 8.9 | *226* |
| P | 50.4 | *1280* |
| Q | 36.9 | *938* |
| R | 30.3 | *770* |

## RECOMMENDED CITATION FORMAT:

NTTL.(2018). OECD tractor test 2994 for Massey Ferguson 7714S Dyna 4 Diesel. Lincoln, NE:Nebraska Tractor Test Laboratory. Retrieved from http://tractortestlab.unl.edu